

PATENT COOPERATION TREATY

From the:
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

PAULSON, Mark G.
PILLSBURY MADISON & SUTRO, LLP
1100 New York Avenue, N.W.
Washington, D.C. 20005
ETATS-UNIS D'AMERIQUE

PCT

WRITTEN OPINION

(PCT Rule 66)

Date of mailing (day/month/year)		23.10.2000
Applicant's or agent's file reference IR251910		REPLY DUE within 3 month(s) from the above date of mailing
International application No. PCT/US99/24019	International filing date (day/month/year) 12/11/1999	Priority date (day/month/year) 13/11/1998
International Patent Classification (IPC) or both national classification and IPC G21F9/30		
Applicant IR SYSTEMS INTERNATIONAL et al.		

- This written opinion is the **first** drawn up by this International Preliminary Examining Authority.
- This opinion contains indications relating to the following items:
 - I ☒ Basis of the opinion
 - II ☐ Priority
 - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
 - IV ☐ Lack of unity of invention
 - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
 - VI ☐ Certain document cited
 - VII ☒ Certain defects in the international application
 - VIII ☐ Certain observations on the international application
- The applicant is hereby **invited to reply** to this opinion.

When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also: For an additional opportunity to submit amendments, see Rule 66.4.
For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis.
For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.
- The final date by which the international preliminary examination report must be established according to Rule 69.2 is: **13/03/2001**.

Name and mailing address of the international preliminary examining authority:



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized officer / Examiner

Gianni, G

Formalities officer (incl. extension of time limits)

Magliano, D

Telephone No. +49 89 2399 2245



I. Basis of the opinion

1. This opinion has been drawn on the basis of (*substitute sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed".*):

Description, pages:

1-20 as originally filed

Claims, No.:

1-35 as originally filed

Drawings, sheets:

1/3-3/3 as originally filed

2. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

3. This opinion has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

4. Additional observations, if necessary:

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**1. Statement**

Novelty (N)	Claims	1-4
Inventive step (IS)	Claims	1-35
Industrial applicability (IA)	Claims	

2. Citations and explanations

see separate sheet

VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Regarding item V

- 1). Document D1:US-A-5 300 137, column 9, line 38 - column 10, line 14, column 11, lines 5-45, fig.1, discloses an apparatus 7 for the separation of waste constituents from matrices comprising:
- a vessel 8 having a top, said vessel having
 - a manifold 10,15,17 for removal of gases,
 - a bottom and means for heating - by definition, the vessel being a furnace interior of said vessel.

Thus, claim 1 may be directly read on the cited document and consequently claim 1 appears to lack novelty with said document and does not satisfy the requirements of Article 33(2) PCT.

- 2). The apparatus disclosed in D1 further comprises means 21 for generating a vacuum for withdrawing gases through said manifold.

Thus, the subject-matter of claim 2 is not novel.

- 3). D1 discloses an apparatus comprising a removable tray 40.

Therefore, also the subject-matter of claim 3 lacks novelty.

- 4). D1, fig.1, discloses an apparatus 7 comprising 4 sides.

Also, the subject-matter of claim 4 is not novel.

- 5). The features disclosed in claims 5-19 are not inventive, because they concern constructional details coming within the scope of the customary practice followed by a person skilled in the art, especially as the advantages thus achieved can readily be contemplated in advance.

Therefore, the subject-matter of said claims appear to lack an inventive step and do not satisfy the requirements of Article 33(3) PCT.

- 6). From document D1, passages cited above, it can be inferred a method for the separation of hazardous waste constituents from matrices comprising the steps of:
- placing matrices in a container,
 - heating matrices,
 - creating a subatmospheric pressure (see D1, column 11, lines 9-17),
 - removing the gaseous constituents.

The subject-matter of claim 20 appears to be known from D1, and thus the requirements of Article 33(2) PCT are not satisfied.

- 7). The features disclosed in claims 21-35 are not inventive, because they concern constructional details coming within the scope of the customary practice followed by a person skilled in the art, especially as the advantages thus achieved can readily be contemplated in advance.

It shall be noted that several of the documents cited in the Search Report appear to be pertinent for use against the presence of novelty and inventive step in claims 1-35.

Regarding item VII

- 1). To meet the requirements of Rule 6.3(b) PCT the independent claim should be properly cast in the two part form, with those features which in combination are part of the prior art being placed in the preamble.
- 2). Reference signs in parentheses should be inserted in the claims to increase their intelligibility, Rule 6.2(b) PCT. This applies to both the preamble and the characterising portion.
- 3). The units of measure, temperature employed in claims 10,22,32 and on pages 5,6,10,14,17,18 are not additionally expressed in terms of the units stipulated by Rule 10.1/(a)/and/(b) PCT.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/24019

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G21F9/30 G21F9/32 B09C1/06 B09B3/00 F23G5/027
F23G7/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G21F F23G

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 300 137 A (WEYAND THOMAS E ET AL) 5 April 1994 (1994-04-05) the whole document	1-4, 9, 13, 15, 17, 18, 20-25, 32-34
P, X	WO 99 03600 A (O HAM JEFFREY K) 28 January 1999 (1999-01-28) the whole document	1-4, 6-10, 12-15, 17-25, 27-35
X	DE 38 24 014 A (ASEA BROWN BOVERI) 18 January 1990 (1990-01-18) the whole document	1, 4, 13, 18
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☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents:

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

- "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

19 September 2000

Date of mailing of the international search report

26/09/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Brothier, J-A

INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/24019

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 718 358 A (MIZUSHIMA TOYOSHI ET AL) 12 January 1988 (1988-01-12) the whole document ---	1,4,12, 18
X	US 3 706 662 A (WELLFORD WALKER L JR) 19 December 1972 (1972-12-19) the whole document ---	1,3,4,6, 7,18
X	EP 0 437 666 A (KYDD PAUL H DR) 24 July 1991 (1991-07-24) the whole document ---	1,4,12, 18
X	US 4 951 583 A (MCGILL EUGENE C ET AL) 28 August 1990 (1990-08-28) the whole document ---	1,13,18
X	EP 0 629 818 A (DINAMEC NV) 21 December 1994 (1994-12-21) the whole document ---	1,4,6,18
P,X	EP 0 899 509 A (AMAND ENTWICKLUNGS GMBH) 3 March 1999 (1999-03-03) the whole document ---	1,3,9, 17,18
A	US 4 631 384 A (CORNU AYME) 23 December 1986 (1986-12-23) the whole document -----	1

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 99/24019

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5300137 ✓ A	05-04-1994	AU 685754 B	29-01-1998
		AU 4852293 A	12-04-1994
		CA 2144858 A,C	31-03-1994
		EP 0663960 A	26-07-1995
		JP 8501601 T	20-02-1996
		NZ 256240 A	25-06-1996
		WO 9406946 A	31-03-1994
WO 9903600 ✓ A	28-01-1999	AU 8494898 A	10-02-1999
DE 3824014 ✓ A	18-01-1990	WO 9000700 A	25-01-1990
US 4718358 ✓ A	12-01-1988	JP 1644192 C	28-02-1992
		JP 3009440 B	08-02-1991
		JP 61153308 A	12-07-1986
		JP 61153310 A	12-07-1986
		CN 85109267 A,B	02-07-1986
		DE 3583595 D	29-08-1991
		EP 0185931 A	02-07-1986
		KR 9310859 B	15-11-1993
		KR 9310860 B	15-11-1993
		KR 9310861 B	15-11-1993
US 3706662 ✓ A	19-12-1972	CA 939198 A	01-01-1974
EP 0437666 ✓ A	24-07-1991	US 4934283 A	19-06-1990
		AT 89065 T	15-05-1993
		AU 619718 B	30-01-1992
		AU 5505890 A	14-03-1991
		CA 2016426 A,C	08-03-1991
		DE 69001543 D	09-06-1993
		JP 3105107 A	01-05-1991
		MX 164400 B	11-08-1992
US 4951583 ✓ A	28-08-1990	NONE	
EP 0629818 ✓ A	21-12-1994	BE 1007224 A	25-04-1995
		DE 69416726 D	08-04-1999
		DE 69416726 T	23-09-1999
		ES 2130344 T	01-07-1999
		JP 7016551 A	20-01-1995
		US 5550352 A	27-08-1996
EP 0899509 ✓ A	03-03-1999	NONE	
US 4631384 ✓ A	23-12-1986	FR 2541428 A	24-08-1984
		CA 1227120 A	22-09-1987
		DE 3463422 D	04-06-1987
		EP 0125933 A	21-11-1984
		JP 59195025 A	06-11-1984

From the INTERNATIONAL SEARCHING AUTHORITY

PCTNOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT
OR THE DECLARATION

(PCT Rule 44.1)

To:

Pillsbury Madison & Sutro LLP
Attn. PAULSON, Mark G.
1100 New York Avenue, N.W.
WASHINGTON, D.C. 20005-3918
UNITED STATES OF AMERICADate of mailing
(day/month/year)

26/09/2000

Applicant's or agent's file reference

IR251910

FOR FURTHER ACTION

See paragraphs 1 and 4 below

International application No.

PCT/US 99/24019

International filing date
(day/month/year)

12/11/1999

Applicant

IR SYSTEMS INTERNATIONAL et al.

- 1.
- ☒
- The applicant is hereby notified that the International Search Report has been established and is transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the International Search Report; however, for more details, see the notes on the accompanying sheet.**Where?** Directly to the International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland
Facsimile No.: (41-22) 740.14.35**For more detailed instructions,** see the notes on the accompanying sheet.

- 2.
- ☐
- The applicant is hereby notified that no International Search Report will be established and that the declaration under Article 17(2)(a) to that effect is transmitted herewith.

- 3.
- ☐
- With regard to the protest**
- against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

- 4.
- Further action(s):**
- The applicant is reminded of the following:

Shortly after **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.Within **19 months** from the priority date, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until 30 months from the priority date (in some Offices even later).Within **20 months** from the priority date, the applicant must perform the prescribed acts for entry into the national phase before all designated Offices which have not been elected in the demand or in a later election within 19 months from the priority date or could not be elected because they are not bound by Chapter II.

Name and mailing address of the International Searching Authority

European Patent Office, P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Maria Van der Hoeven

NOTES TO FORM PCT/ISA/220

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

NOTES TO FORM PCT/ISA/220 (continued)

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference IR251910	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/US 99/ 24019	International filing date (day/month/year) 12/11/1999	(Earliest) Priority Date (day/month/year) 13/11/1998
Applicant IR SYSTEMS INTERNATIONAL et al.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

☒ None of the figures.